

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

903285

ABSTRACT OF THE DISCLOSURE

A lacrosse racquet is formed with a resilient, unipartite and generally planar guard panel usefully formed as a moulded lattice structure from a suitable plastics material for interconnecting the toe and spine portions of the racquet. Such a guard panel avoids the problems due to sagging and bowing of woven guard structures and facilitates stringing. By forming the principal frame as a unitary moulded structure from a suitable plastic material, the lip portion of the racquet can be made much thinner than was previously possible thereby facilitating "scooping" the ball off the ground by the player.

ABSTRACT OF THE DISCLOSURE

A lacrosse racquet is formed with a resilient, unipartite and generally planar guard panel usefully formed as a moulded lattice structure from a suitable plastics material for interconnecting the toe and spine portions of the racquet. Such a guard panel avoids the problems due to sagging and bowing of woven guard structures and facilitates stringing. By forming the principal frame as a unitary moulded structure from a suitable plastic material, the lip portion of the racquet can be made much thinner than was previously possible thereby facilitating "scooping" the ball off the ground by the player.

10 The present invention relates to racquets for use in the game of lacrosse.

Such a racquet is usually formed from a light staff of hickory wood, the end of which is bent to form a kind of hook. In the original racquets, a thong extended from the end of the hook to a point along the staff and the rounded triangle so formed was woven with a loose netting of gut or rawhide. It is also known to weave the netting in such a way that an upstanding guard strip is formed below the thong to provide a ball-catching pocket along the racquet. Flexible gut spacers are often incorporated in such a guard strip to provide a more defined pocket.

20 It has, however, been recognized that such guard strips are unsatisfactory in that in time the spacers become deformed causing the top edge of the guard strip either to curl inwardly or to bow outwardly. It will be appreciated that such bending of the guard strip will alter the ball-catching area of the racquet and that, if the inward curling is excessive, there will even be a danger of a ball becoming trapped in the racquet during play.

30 It has previously been suggested that this difficulty might be avoided by the incorporation of rigid spacer members in the guard strip. Such spacer members are frequently held in place by their end engagement with the individual ends or strips of the netting. Obviously, if the netting sags during use, there is a danger that the ends of such spacer members might become disengaged from the netting. If, on the other hand, the netting is threaded through holes provided in the spacer members, the stringing operation becomes much more complicated and time-consuming.

A further disadvantage of presently known racquets is that the thinness of



the hook or lip portion at the forward end of such a racquet is limited by factors of strength. A characteristic feature of the game of lacrosse is the speed at which it is played and to permit the pace of the game to be maximized, it is important that a player can readily "scoop" the ball up off the ground. This is particularly true at the present time in view of the rapidly growing popularity of the indoor version of the game. For this reason, the thinnest possible lip portion is desirable in a lacrosse racquet.

An object of the present invention is to provide an improved lacrosse racquet.

10 A more specific object of the present invention is to provide a lacrosse racquet in which the guard does not sag or bow.

These and other objects are achieved in accordance with the invention by the provision of a lacrosse racquet comprises a frame in the general form of a "7" and having a handle portion, a wall-defining spine portion, a generally planar lip portion and a toe portion, said handle and spine portions meeting at a crotch, said lip portion extending transversely between said spine portion and said toe portion and being disposed with the major plane generally parallel to a principal plane of said racquet and said toe portion extending from said lip portion towards said handle portion, a resilient unipartite and generally planar guard panel interconnected between said toe and spine portions with the lower edge thereof disposed generally in the same plane as the lip portion and being secured to said spine portion in general proximity to said crotch, and netting strung between said spine and lip portions and to said guard panel generally along said lower edge thereof.

20

By such use of a resilient unipartite guard panel, the danger of the guard bowing or sagging is completely avoided. Furthermore, this result is achieved without requiring a complex and time-consuming stringing operation. In fact, the assembly of the racquets of the invention is significantly more simple than that for those of the prior art.

By the use of a resilient plastics material, the guard panel can readily be formed by moulding as a unitary structure. For this purpose, both thermoplastic and thermosetting compositions may be used and such compositions may usefully contain reinforcing fillers such as glass fibres. A wide range of such compositions may be used and the use herein of the expression "plastics materials" is intended to denote any of the known thermoplastic or thermosetting compositions presenting

30

the desired combination of rigidity and resilience.

In accordance with a preferred feature of the present invention, the frame of the racquet is itself manufactured from a suitable high strength resilient plastics material. By the use of such a material and of a moulding technique, the lip portion of the racket may be made much thinner than was previously possible and, as previously explained, this facilitates the "scooping" of a ball off the ground by a player.

The invention will now be described merely by way of illustration with reference to the accompanying drawings in which:

10 Figure 1 is a perspective view of a lacrosse racquet in accordance with the invention with the netting omitted for the sake of clarity,

Figure 2 is a partial top plan view of the racquet of Figure 1, and

Figure 3 is an enlarged elevation of the guard panel of the racquet of Figure 1.

The racquet generally indicated at 10 in the drawings comprises a frame in the general form of a 7 and having a handle portion, generally indicated at 12, a wall-defining spine portion 14, a thin generally planar lip portion 16 and a toe portion 18. It will be noted that the lip portion 16 extends transversely between the spine portion 14 and the toe portion 18 and extends towards the handle portion 12 to provide a "scoop" surface 20. This surface 20 is effective for use by a
20 player for "picking-up" the ball off the ground.

The area 22 at which the spine portion 14 meets the handle portion 12 is herein referred to as the crotch. A resilient unipartite guard panel of a moulded plastics material and generally indicated at 24 interconnects the toe portion 18 and the spine portion 14 being connected to the latter in general proximity to the crotch 22.

Four lead straps 26 extend from the crotch 22 to the inner edge of the lip portion 16. Each of these straps 26 is secured to the lip portion 16 by first being passed through an opening 28 provided for this purpose in proximity to the
30 inner edge of the lip portion 16. Each strap 26 is provided in a known manner at its forward end with two openings through which the strap is threaded to form a loop 30 about the inner edge of the lip portion 16. The other ends of the straps 26 are secured to the spine portion 14 by passing them through holes 32 provided therein for this purpose.

The racquet is essentially completed by netting 34 strung between the spine portion 14 and the guard panel 24, being threaded around the lead straps 26 and through the holes 32 in the spine portion 14 as well as around the lower member 36 of the guard panel 24. The guard panel 24 is itself secured to the frame by flexible ties or strings 38 passing through holes 40 provided for this purpose in the spine portion 14 and in the toe portion 18. Each end of the guard panel 24 is secured by two such ties 38 to prevent twisting of the guard panel with respect to the netting 34.

10 As hereinbefore explained, the guard panel 24 may be formed of any suitable rigid but resilient material. Although the guard panel 24 is shown in the drawings as having an open lattice structure, it will be appreciated that panels having other configurations can also be used.

The use of fibre-reinforced plastics materials for both the guard panel 24 and the frame itself has already been mentioned. The use of such materials permits the manufacture of the racquets by relatively inexpensive moulding operations as well as enabling the racquets to be made with the optimum angle at the crotch 22 and with the desirable thin lip portion 16.

The racquet shown in the drawings is also provided, as is well known for existing racquets, with a stop guard 42 and a brace strap 44.

20

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. In a lacrosse racquet comprising a frame of resilient plastic material in the general form of a numeral 7 and including a handle portion, a wall defining spine portion of a substantial constant thickness, a generally planar lip portion and a toe portion, said lip portion being thinner than said spine and said toe portions, said handle and spine portions meeting at a crotch, said lip portion extending transversely between said spine portion and said toe portion and being disposed with its major plane generally parallel to a principal plane of said racquet and said toe portion extending from said lip portion toward said handle portion, and netting strung between said spine and lip portions, a resilient, generally planar unitary guard panel of a resilient plastic material having generally parallel upper and lower edges being connected between said toe portion and said spine portion of said racquet with said lower edge thereof disposed generally in the same plane as said lip portion of said racquet, being secured to said spine portion in general proximity to said crotch, and having said netting secured therealong in general proximity to said lower edge thereof strung between said spine and lip portions and said guard panel.

2. In a lacrosse racquet as claimed in claim 1, said guard panel being in the form of an open lattice structure detachably secured at each end thereof to said toe and spine portions by at least two flexible ties passing through said lattice structure and through openings provided for this purpose in said toe and spine portions.



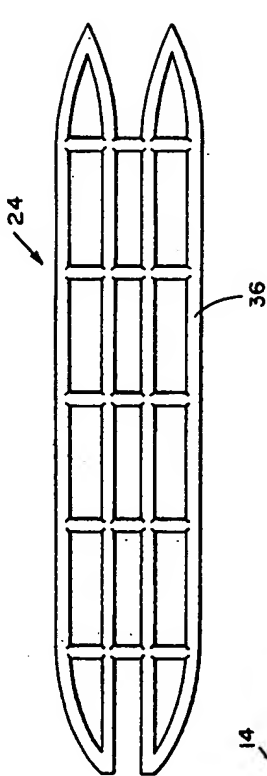


FIG. 3

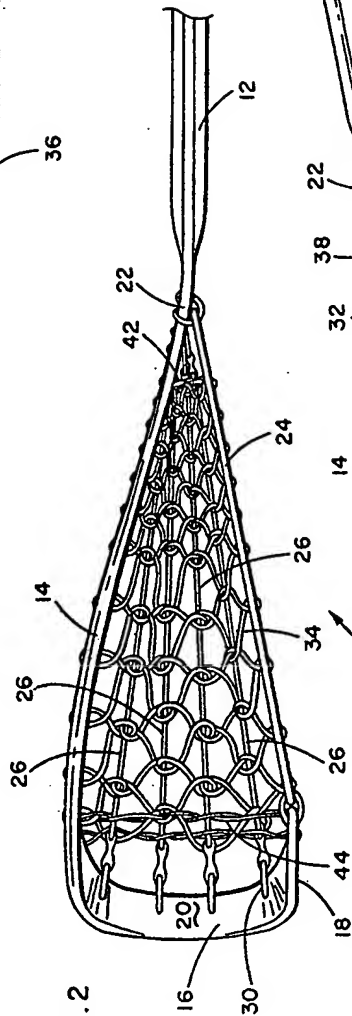


FIG. 2

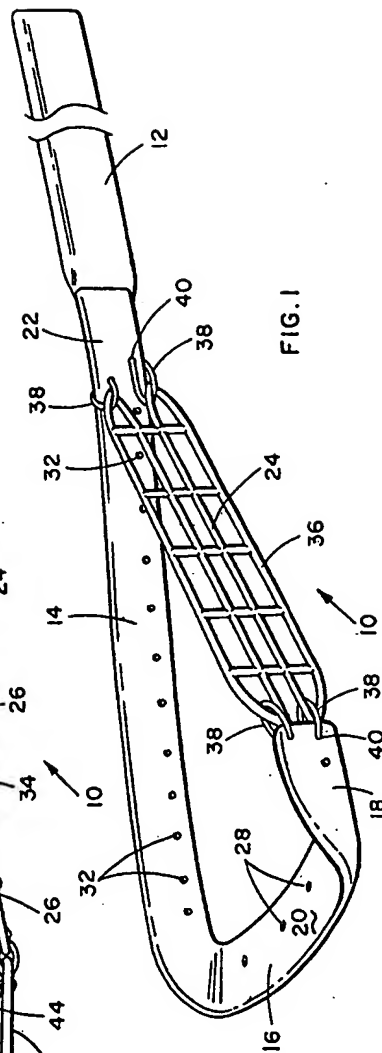


FIG. 1

INVENTORS
 FRANKLIN MILLIGAN
 DANIEL R. KOCHO
W. J. Harwood
 ATTORNEY